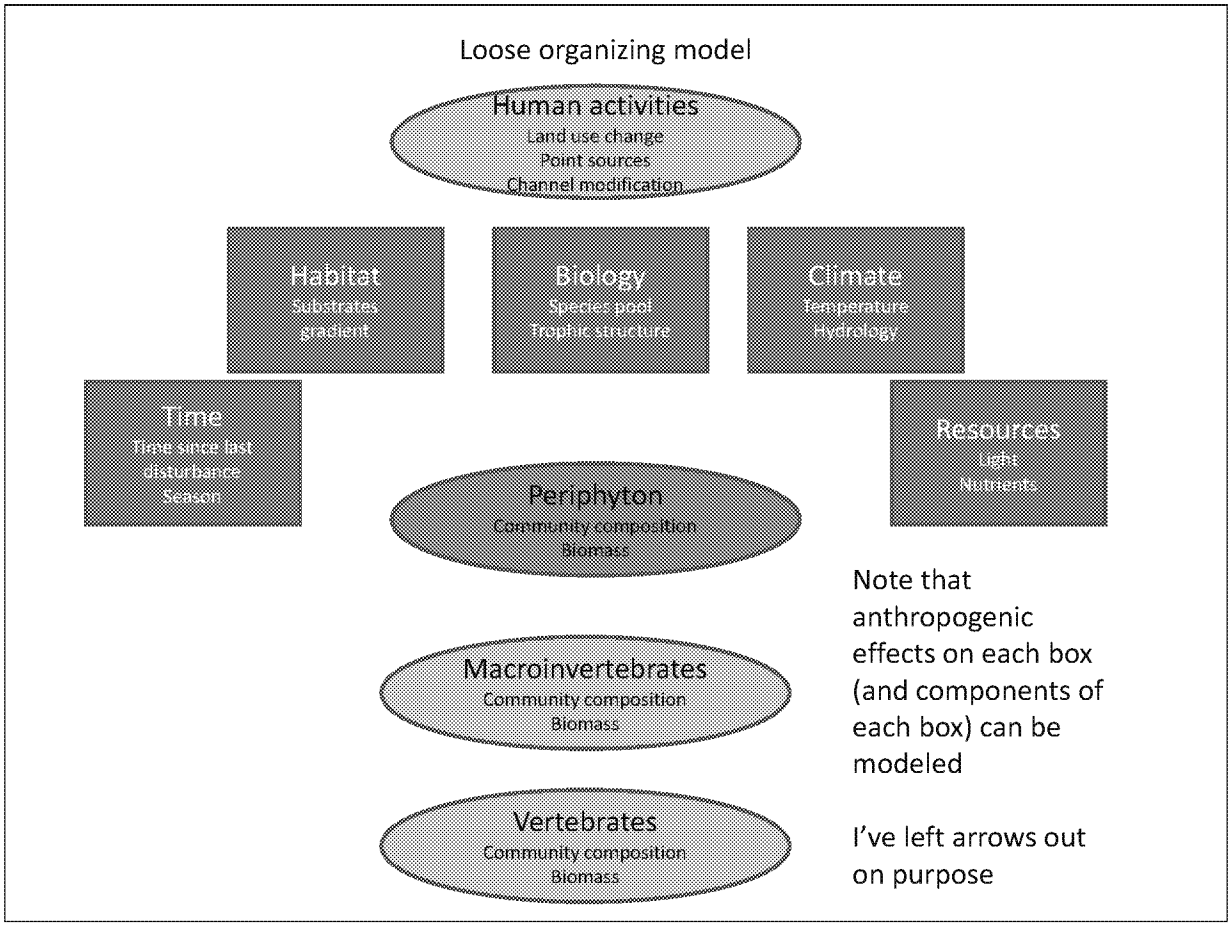
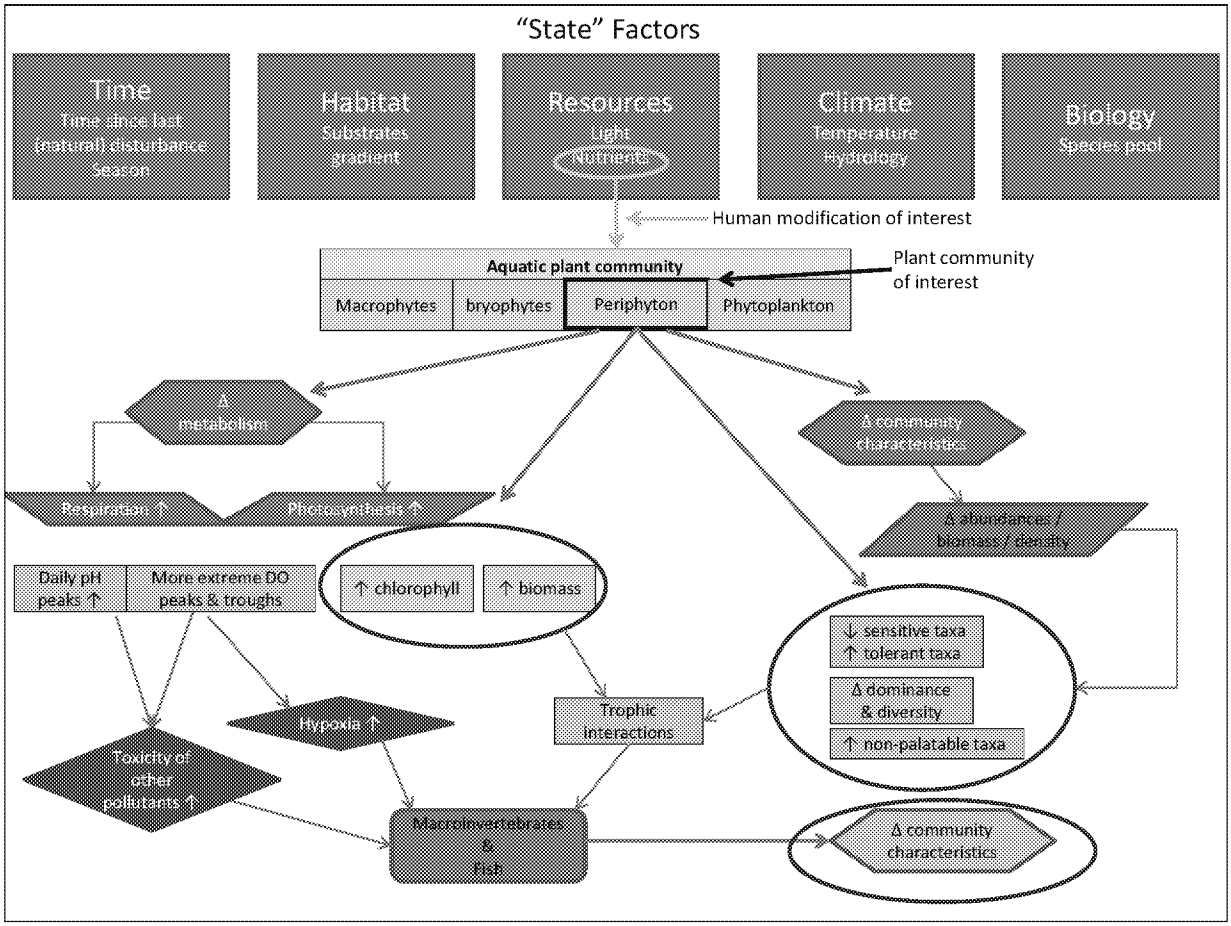
# Factors influencing periphyton community structure in lotic systems

- Available resources (nutrients, light)
- Temperature & hydrology
- Species pool and stream trophic structure
- Habitat (available organic and inorganic substrates)
- Time since disturbance

(adapted from Jenny's 5 soil forming factors, which I think is vastly underutilized way of conceptualizing factors that control ecosystem and community processes)

This is one way (of many possible alternative) to place nutrient-periphyton models in greater context


Loose organizing model
Human activities
Land use change
Point sources
Channel modification
Habitat
Substrates
gradient
Biology
Species pool
Trophic structure
Climate
Temperature
Hydrology
Time
Time since last disturbance
Season
Resources
Light
Nutrients
Periphyton
Community composition
Biomass
Macroinvertebrates
Community composition
Biomass
Vertebrates
Community composition
Biomass
Note that anthropogenic effects on each box (and components of each box) can be modeled
I've left arrows out on purpose




Red circles = response variables of interest

# Periphyton communities

- The largest challenge will be to figure out community composition responses, e.g. more diatoms at low N and P; increased prevalence of cyanobacteria with higher P and/or reduced forms of N.

- Shifts in community composition, Indicator taxa (useful, but not in lieu of complete community data), biomass, Chl-a, inference models (inferred nutrients from community abundances)